

2011 Military Health System Conference Infections Complicating the Care of Combat Casualties during Operations Iraqi Freedom and Enduring Freedom

The Quadruple Aim: Working Together, Achieving Success

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27 January 2011

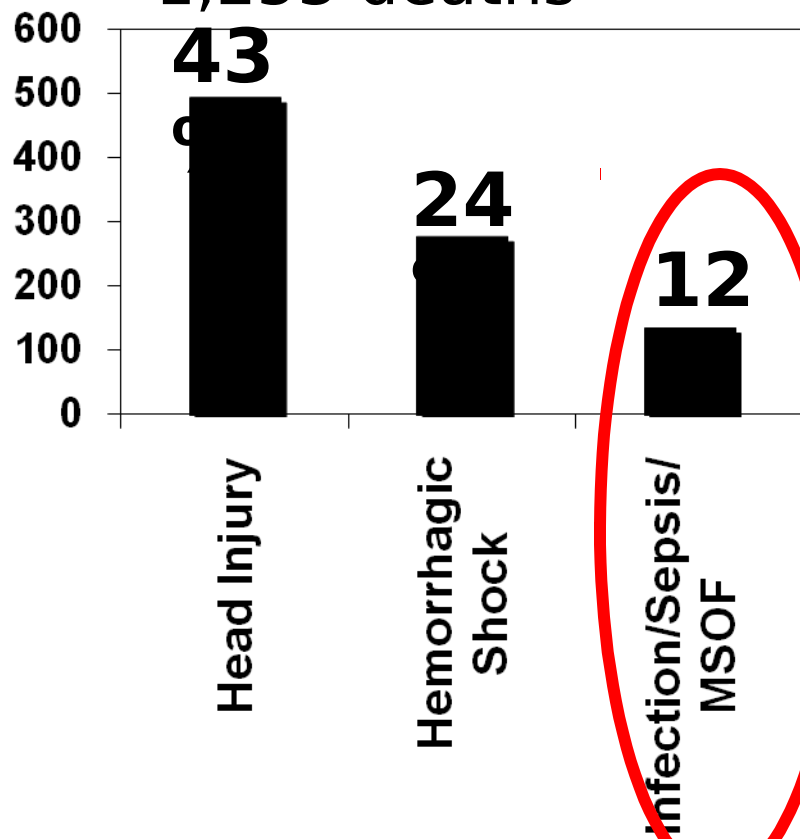


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US Army Institute of Surgical Research
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US Military HIV Research Program**

Vietnam Combat Hospitals- Mortality

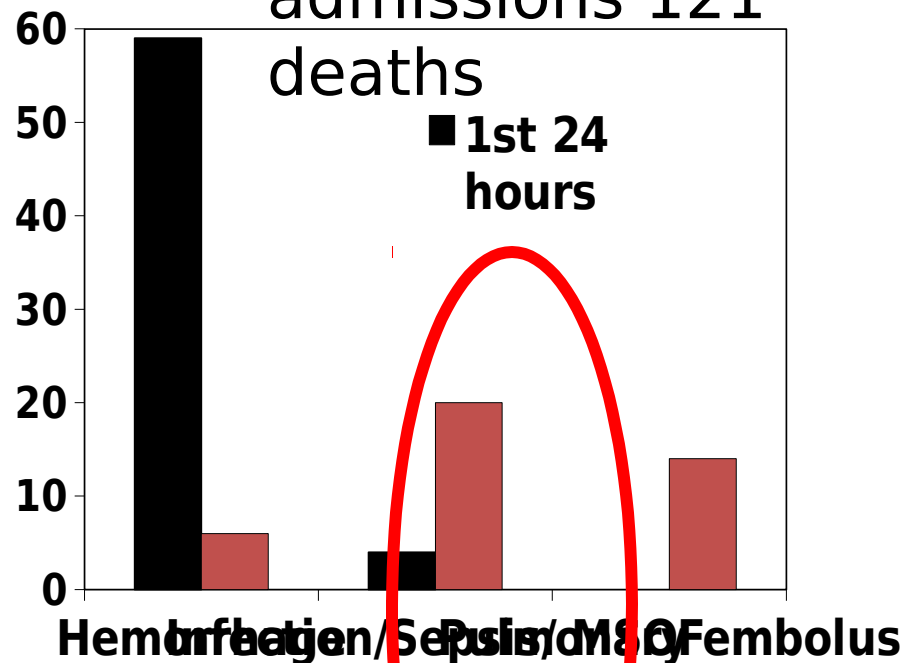


132,996 admissions
1,253 deaths



Arnold. Military Medicine.
1970

6,927
admissions 121
deaths



Feltis. American Journal of Surgery.
1970

Infectious Complications



Injured
8 April 2006

2011 MHS Conference

- Infections due to
 - *Acinetobacter*
 - *Pseudomonas*
 - *Klebsiella*
 - *Staphylococcus aureus*
- Complications
 - Kidney
 - Bone marrow

Pictures with



Retired
27 March
2010

Objective



- Assess infectious complications and their risk factors among combat casualties to mitigate excess morbidity and mortality



75% body surface
area burn patient
Ar Ramadi, Iraq

Methodology



- Joint Theater Trauma Registry (JTTR)
 - Deployment-related injuries with completed records between 19 March 2003-13 April 2009
 - ICD-9 codes for infections defined by
 - Anatomical/clinical syndrome
 - Infecting pathogens
 - Risk factors included
 - Mechanisms of injury
 - Injury severity
 - Transfusion



Results



- 16,742 patients
 - 15,021 from Iraq (90%)
 - 10,973 battle injuries (67%)- 36% explosions
 - 97% male, 78% enlisted, 78% Army
- Infections
 - 921 (6%) had one or more infections
 - Anatomical/clinical syndromes-skin/wounds
 - Infecting pathogens- gram negative bacteria

Conclusions



- Casualties from Iraq and Afghanistan face substantial risk of infectious complications
- Improved diagnostic platforms and treatment modalities are needed from near the point of injury through long-term rehabilitative care
- Focus on standardized treatment guidelines and infection control and prevention strategies

Limitations



Issues

- ICD-9 code diagnosis
- Retrospective chart review
- Inadequate infectious disease specific granularity
- Inadequate long-term follow up
- Poor correlation of infection with bacterial isolates over time and

Solution

- JTTR ID module
- Trauma ID Outcome Study (TIDOS)
- Multidrug-resistant Organism Repository and Surveillance Network (MRSN)

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Combat Related Infections



- Recognized since the earliest recording of battlefield morbidities
- A dynamic and ever evolving threat
 - Establishment of improved body armor, well equipped ICUs, relatively rapid evacuation of wounded
 - Continued evolution of microbial resistance
 - NDM (New Delhi metallo-beta-lactamase)
- The uniqueness of the military medical care system and the requirement for US Military to advance the understanding of the ever changing dynamics of combat associated infections and lead the progress in improved care and treatment of combat related infections requires a longstanding commitment to a comprehensive focused research mission
 - Joint Theater Trauma System (JTTS) and Joint Theater Trauma Registry (JTTR)